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IVAN IVANOVICH ZHUKOV

By the Editorial Staff

Ivan Ivanovich Zhukov, leading Soviet physical chemist in the fields of electrochemistry and colloidal chemistry, and member of the Editorial Staff of Kolloidnyy Zhurnal, died 13 August 1949 after more than 45 years of scientific activity.

Zhukov was born 3 December 1880 in Petersburg, and graduated in 1903 from the university there. His scientific work was subsequently centered in the university, now Leningrad University, where he headed the Chair of Physical and Colloidal Chemistry, and then the Chair of Colloidal Chemistry up to the time of his death. Here he organized a chemical institute and was its director.

This scientist also worked on industrial problems, particularly those relating to the physiochemical properties of types of Soviet synthetic rubber. He was also influential in disseminating physical and colloidal chemical knowledge among physicians.

He was one of the most active members, through its Leningrad Department, of the Russian Physical Chemical Society--now the All-Union Physicochemical Society imeni Mendeleyev.

A student of D.P. Konovalov, Zhukov had never been a strict specialist. His first significant work (1907-1926) was devoted to investigation of the interaction of hydrogen and nitrogen with metals. This research was climaxed by "Investigations in the Fields of Hydrides and Nitrides of Metals," which he published in Vol III of News of the Institute of Physicochemical Analysis of the Academy of Sciences USSR in 1926.

Concurrently he was also interested in problems of colloidal chemistry, e.g., hydrophilic colloidal systems and their importance in medicine, biology, and engineering. From 1924-1927 he and his students investigated the properties of gelatins--the distribution of hydrogen ions between gelatin

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and water, and the effect of electrolytes on the isoelectric points of gelatin. During 1928-1929 Zhukov did research on the colloidal chemical properties of peat. In 1931 he conducted physicochemical investigations on synthetic rubber, working with divinyl polymerized over sodium. Specifically, Zhukov investigated the fractional composition of sodium polymerized butadiene rubber, demonstrating its plastic behavior. He accomplished the first accurate study of the adhesiveness of synthetic rubbers, and introduced into this work systematic procedure and nomenclature.

In the period 1929-1932, Zhukov, along with his collaborators, developed a new method for determining the concentrations of hydrogen ions. He developed an antimony electrode which made it possible to determine pH with greater accuracy than before. In 1933, he studied the electrochemical and catalytic properties of fine films of platinum metals produced by electrolysis, discovering that their properties were close to those of platinum black. His work in the field of electrokinetic phenomena in hydrophilic colloidal suspensions was outstanding. Work on this effect of electrolyses upon kaolin suspensions led him toward the discovery in 1928-1929 of optimum conditions for coagulation in the purification of Neva water.

Zhukov's article in Uspekhi Khimii, Vol XII, 1943, "Electrokinetic Phenomena as Applied to Electrodialysis" summarizes research done by himself and his collaborators for the purpose of solving the problems of water purification by electrodialysis.

His work on the surface conductivity of solid dispersoids and capillary systems was published in the 1946-1949 issues of Kolloidnyy Zhurnal. At a Mendeleyev conference 17 February 1949, he read a report on the electrokinetic properties of capillary systems.

He developed numerous courses and wrote several textbooks at Leningrad University. In 1945, he published a history of chemistry at Leningrad University for the last 125 years in Transactions of the Jubilee Session of Leningrad State University.

Among his students were A. I. Yurzhenko, T. I. Yurzhenko. S. L. Talmud, V. A. Komarov, O. N. Grigorov, D.A. Fridrikhsberg, I. Ya. Poddubniy, G. P. Avseyevich, A. M. Gortikov, I. G. Vorokhobina, and Yu. K. Novodranov, now specialists in colloidal chemistry.

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